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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,978	11/14/2003	Tatsuya Arao	0756-7219	7501

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EXAMINER	
BOOTH, RICHARD A	

ART UNIT	PAPER NUMBER
2812	

DATE MAILED: 05/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/706,978	ARAO ET AL.	
	Examiner	Art Unit	
	Richard A. Booth	2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 February 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *0206, 0104*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Kensaku, JP 11-204433 in view of Tanaka et al, U.S. 2003/0031214.

Kensaku shows the invention as claimed including a method for fabricating a semiconductor device comprising: forming a semiconductor film having an amorphous structure over a substrate; and irradiating the semiconductor film with an excimer laser beam in a linear or rectangular shape while applying ultrasonic vibration to the substrate to crystallize the semiconductor film (see (57) Summary in page 1 of translation).

Kensaku is applied as above but does not expressly disclose floating the substrate. Tanaka et al. discloses holding a substrate over a stage having pores, spouting gases from the pores to float the substrate, and holding an end portion of the substrate (see, for example, paragraph 0088). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Kensaku so as to hold the substrate as disclosed by Tanaka et al. because such a method allows for adequate controlled crystallization of the semiconductor film.

Furthermore, Kensaku and Tanaka et al. are applied as above but do not expressly disclose wherein the semiconductor device is used for a display device selected from the claimed group. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Kensaku so as to use the semiconductor device in one of the claimed display devices because it is well known to those of ordinary skill in the art that semiconductor devices are commonly used in these display devices.

Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kensaku, JP 11-204433 in view of Tanaka et al, U.S. 2003/0031214 as applied to claims 1-7 above, and further in view of Chae, U.S. Patent 5,432,122.

Kensaku and Tanaka et al. are applied as above but do not expressly disclose crystallizing while overlapping a beam spot of the laser beam on the film.

Chae discloses overlapping a beam spot of lasers (see abstract). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Kensaku so as to scan so as to overlap beam spots on the film because such a method will allow for the manufacture of a high mobility transistor.

Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kensaku, JP 11-204433 in view of Tanaka et al, U.S. 2003/0031214 as applied to claims 1-7 above, and further in view of Liu et al., U.S. Patent 5,147,826.

Kensaku and Tanaka et al. are applied as above but do not expressly disclose crystallizing the semiconductor film by adding a metal element such as nickel for enhancing a crystallization.

Liu et al. discloses adding a metal element for enhancing a crystallization of a semiconductor film (see abstract and col. 4-lines 21-34). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Kensaku modified by Tanaka et al. so as to add a metal element to the semiconductor film because in such a way crystallization can be achieved at a lower temperature.

Claims 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kensaku, JP 11-204433 in view of Tanaka et al, U.S. 2003/0031214 and Chae, U.S. Patent 5,432,122 as applied to claims 11-13 above, and further in view of Liu et al., U.S. Patent 5,147,826.

Kensaku, Tanaka et al., and Chae are applied as above but do not expressly disclose crystallizing the semiconductor film by adding a metal element for enhancing a crystallization.

Liu et al. discloses adding a metal element for enhancing a crystallization of a semiconductor film (see abstract and col. 4-lines 21-34). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Kensaku modified by Tanaka et al. and Chae so as to

add a metal element to the semiconductor film because in such a way crystallization can be achieved at a lower temperature.

Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kensaku, JP 11-204433 in view of Kusumoto et al., U.S. Patent 6,027,960.

Kensaku is applied as above but does not expressly disclose irradiating the semiconductor film in an oxygen atmosphere.

Kusumoto et al. discloses laser annealing in an oxygen atmosphere (see col. 10-lines 21-26). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Kensaku so as to perform laser annealing in an oxygen atmosphere because the crystallinity will be improved.

Response to Arguments

Applicant's arguments filed 2/16/06 have been fully considered but they are not persuasive. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation to

combine the references is clearly stated in the above rejection. Furthermore, the floating substrate embodiment discussed is effective to move the substrate, if desired.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard A. Booth whose telephone number is (571) 272-1668. The examiner can normally be reached on Monday-Thursday from 7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Lebentritt can be reached on (571) 272-1873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Richard A. Booth
Primary Examiner
Art Unit 2812

May 1, 2006